Resistance parameters statistics for jacket platforms in offshore Malaysia

Abstract

This paper forms a part of the work on the reliability based calibration of load and resistance factors for design of offshore jacket platforms in Malaysia. The statistical parameters for the resistance of structural members of platforms are discussed here. The data is obtained from ten platforms which were fabricated in Malaysia for Offshore Malaysia. Resistance capacity of structural members must be equal to or greater than the action of external loads. Resistances depend upon material property, geometric dimension of structural members and the model for resistance, all of which are sources of randomness. The mean coefficient, variation coefficient and type of distribution for geometrical parameters (diameter, thickness, length) and material parameters (yield strength, Young's modulus and tensile strength) are presented. This data is compared with the data available in literature. The expressions for the stresses and stress combinations namely axial tension, axial compression, bending and tension combined with and without hydrostatic pressure, axial compression and bending with and without hydrostatic pressure, and shear resistance are available in ISO 19902. The statistical parameters of the first four are determined. These values are also compared to the values available in literature.